Appl. No. 10/802,614
Attorney. Docket. No. 14846-53

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Amendments to the Claims

Please amend Claims 1, 3, 7, 10, 11, 13, 17, and 20, and cancel Claims 2 and 12. The following listing of claims replaces all prior versions and listings of claims in the present invention

1.      (Currently Amended) A method for updating a collection of tree data structures in a computer-readable database with input data, the method comprising:

generating a query tree having a tree data structure by applying a mask to the input data to generate a query tree, the mask and the input data each corresponding to a tree data structure;

storing the query tree in a computer-readable memory;

applying the query tree to the collection of tree data structures in the database to identify an identified tree consistent with the query tree;

deleting the identified tree from the database; and

adding the input data to the database.

2.      (Cancelled)

3.      (Currently Amended) The method of claim [[2]] 1 wherein the input data is a unit of input data and the method further comprises: receiving a set of input data comprising a plurality of input data including the unit of input data, each of the set of input data corresponding to a tree data structure; generating the mask by identifying a common characteristic among the set of input data; storing the mask in a computer-readable memory; and adding the set of input data to the database.

4.      (Original) The method of claim 3 wherein the common characteristic among the set of input data comprises a matching node in each of the input data, and wherein each matching node has a same value and a same relative position as every other matching node.

5.      (Original) The method of claim 4,

wherein generating the mask generates the mask to have an extending node having the same relative position as each of the matching nodes,

wherein the query tree comprises a query node having the same relative position as each of the matching nodes and the extending node, and

wherein, when the mask is applied to the unit of input data to generate the query tree, the extending node propagates the value of the unit of input data's matching node to the query node.

6.    (Original) The method of claim 5 wherein the identified tree comprises an identified node having the value and the same relative position as the query node.

7.    (Currently Amended) The method of claim [[2]] 1,

wherein the input data comprises a data node having a value,

wherein the mask has an extending node at a same relative position as the data node,

wherein the query tree comprises a query node at the same relative position as the data node and the extending node,

wherein, when the mask is applied to the input data to generate the query tree, the extending node propagates the value of the data node to the query node, and

wherein the identified tree comprises an identified node having the same relative position as the query node and having the value of the query node.

8.    (Original) The method of claim 3 further comprising:

applying the mask to a second set of input data to generate a plurality of query trees each corresponding to a tree data structure, and each of the input data of the second set of input data corresponding to a tree data structure;

storing the plurality of query trees in a computer-readable memory;

applying the plurality of query trees to the collection of tree data structures in the

database to identify a plurality of identified trees consistent with at least one of the plurality

of query trees;

deleting the plurality of identified trees from the database; and

adding the second set of input data to the database.

9.       (Original) The method of claim 8,

wherein each of the input data of the second set of input data comprises a data

node,

wherein each data node has (1) a value, and (2) a same relative position as every

other data node,

wherein the mask has an extending node at the same relative position as each of

the data nodes,

wherein each of the plurality of query trees comprises a query node at the same

relative position as each of the data nodes and the extending node,

wherein, when the mask is applied to the second set of input data to generate the

plurality of query trees, the extending node propagates the value of each of the data nodes to

each of the respective query nodes,

wherein the query nodes each have a different value, and

wherein the plurality of identified trees each comprise an identified node having

the same relative position as each of the query nodes and having a same value as one of the

query nodes.

10.      (Currently Amended) The method of claim [[2]] 1 wherein the collection of tree

data structures comprise heterogeneous data.

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11.    (Currently Amended) A system for updating a collection of tree data structures, the system comprising:

a database component operative to maintain a database comprising the collection of tree data structures;

a memory component, an input component, and

a processing component communicatively connected to the database component, the memory component, and the input component, the processing component programmed to perform actions comprising:

receiving input data from the input component, the input data corresponding to a tree data structure;

generating a query tree having a tree data structure by applying a mask to the input data to generate the query tree, the mask and the input data each corresponding to a tree data structure;

storing the query tree with the memory component;

applying the query tree to the tree data structures in the database to identify an identified tree consistent with the query pattern tree;

instructing the database component to delete the identified tree from the database; and

instructing the database component to add the input data to the database.

12.    (Cancelled)

13.    (Currently Amended) The system of claim [[12]] 11 wherein the input data is a unit of input data, and the processing component is programmed to perform actions further comprising:

receiving a set of input data comprising a plurality of input data including the unit

of input data, each of the set of input data corresponding to a tree data structure;

generating the mask by identifying a common characteristic among the set of

input data;

storing the mask with the memory component; and

instructing the database component to add the set of input data to the database.

14.      (Original) The system of claim 13 wherein the common characteristic among the

set of input data comprises a matching node in each of the input data, wherein each matching

node has a same value and a same relative position as every other matching node.

15.      (Original) The system of claim 14

wherein generating the mask generates the mask to have an extending node

having the same relative position as each of the matching nodes,

wherein the query tree comprises a query node having the same relative position

as each of the matching nodes and the extending node, and

wherein, when the mask is applied to the unit of input data to generate the query

tree, the extending node propagates the value of the unit of input data's matching node to the

query node.

16.      (Original) The system of claim 15 wherein the identified tree comprises an

identified node having the value and the same relative position as the query node.

17.      (Currently Amended) The system of claim [[12]] 11,

wherein the input data comprises a data node having a value,

wherein the mask has an extending node at a same relative position as the data

node,

wherein the query tree comprises a query node at the same relative position as the data node and the extending node,

wherein, when the mask is applied to the input data to generate the query tree, the extending node propagates the value of the data node to the query node, and

wherein the identified tree comprises an identified node having the same relative position as the query node and having the value of the query node.

18.   (Original)  The system of claim 13 wherein the processing component is programmed to perform actions further comprising:

applying the mask to a second set of input data to generate a plurality of query trees each corresponding to a tree data structure, and each of the input data of the second set of input data corresponding to a tree data structure;

storing the plurality of query trees with the memory component;

applying the plurality of query trees to the tree data structures in the database to identify a plurality of identified trees consistent with at least one of the plurality of query trees;

instructing the database component to delete the plurality of identified trees from the database; and

instructing the database component to add the second set of input data to the database.

19.    (Original)  The system of claim 18,

wherein each of the input data of the second set of input data comprises a data node,

wherein each data node has (1) a value, and (2) a same relative position as every other data node,

wherein the mask has an extending node at the same relative position as each of the data nodes,

wherein each of the plurality of query trees comprises a query node at the same relative position as each of the data nodes and the extending node,

wherein, when the mask is applied to the second set of input data to generate the plurality of query trees, the extending node propagates the value of each of the data nodes to each of the respective query nodes, wherein the query nodes each have a different value, and

wherein the plurality of identified trees each comprise an identified node having the same relative position as each of the query nodes and having a same value as one of the query nodes.

20.    (Currently Amended)  The system of claim [[12]] 11 wherein the collection of tree data structures comprise heterogeneous data.